

REMARKS

The present Amendment is in response to the Office Action having a mailing date of June 2, 2003, and in response to a telephonic interview with the Examiner on September 12, 2003. Claims 1-21 are pending in the present Application. Applicant has amended the specification only. Applicant has also amended claims 1, 7, 8, 15, and 21. Consequently, claims 1-21 remain pending in the present Application.

Applicant has amended independent claims 1, 8, and 15 to remove the terms "capable of" relating to the plurality of entries of the data for the being organized into at least one column and at least one row.

Applicant has amended the specification to more clearly describe the function of the generalized scalar function and the relationship between the conventional column function and the generalized scalar function. In particular, Applicant has amended the specification to more clearly state that the generalized scalar function provides the data in a row to the column function in a manner that allows the column function to use the data. Thus, the column(s) are mimicked using data for row(s). Support for the amendment can be found in the Specification, page 7, line 21-page 9, line 6; page 9, line 12-page 10, line 13; and Figure 3, 4, and 5.

Applicant has also submitted herewith a Declaration under 37 C.F.R. 1.132 from one of the named inventors, Jason Cu. The Declaration also clarifies the relationship between the generalized scalar function and the column function. In particular, the Declaration also indicates that the generalized scalar function provides row data to the conventional column function such that the conventional column function can use the data. The Declaration also indicates that the column function is a conventional column function. The Declaration also indicates that in the opinion of the inventor, one of ordinary skill in the art would be capable of implementing the generalized

scalar function given knowledge of the particular column function with which the generalized scalar function is to be used and the disclosure present in the specification. The Declaration also indicates that in the opinion of the inventor, the issues raised by the Examiner in the above-identified telephonic interview are well within the abilities of one of ordinary skill in the art to address.

In the above-identified Office Action, the Examiner objected to the specification under 37 C.F.R. 1.71 as failing to provide an adequate description of the invention. The Examiner also rejected claims 1-21 under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not disclosed in the specification in such a manner as to allow one of ordinary skill in the art to make and/or use the invention. The Examiner also rejected claims 1-21 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to point out and distinctly claim the subject matter that the Applicant regards as the invention. The Examiner also rejected claims 1-21 under 35 U.S.C. § 102 as being anticipated by U.S. Patent No. 6,289,336 (Melton).

In the above-identified Office Action, the Examiner objected to the specification under 37 C.F.R. 1.71 as failing to provide an adequate description of the invention. In particular, the Examiner indicated that “without more, the stand alone generalized scalar function and conventional column function do not provide support for combining any features, regardless of what applicants may teach.”

Applicant respectfully traverses the Examiner’s objection. The specification states that the generalized scalar function is used in conjunction with a column function that is a conventional column function. Specification, page 8, lines 4-5. Thus, the column function that is used is one already in existence in conventional systems. See, for example, Specification, page 2, line 4-page 3, line 12. The column function is a pre-existing, or conventional, column function that is already

available to a user of the present invention. Applicant respectfully submits, therefore, that based on a reading of the specification, one of ordinary skill in the art would understand the term column function, would understand that the inventors have possession of the column portion of the claimed invention, and would be capable of making and/or using the (pre-existing) column function in the manner recited in the claims.

As described in the specification, the generalized scalar function makes the row(s) that are the arguments for the generalized scalar function appear as columns. Specification, page 8, lines 10-13. The generalized scalar function thus provides the entries in the row(s) to a corresponding column function such that the column function can use the data in performing its normal functions. Stated differently, the generalized scalar function provides the data from the row(s) to the corresponding column function so that each row appears to the column function as a column. The column function then operates normally. Specification, page 2, lines 21-23. The use of the generalized scalar function allows row data to be treated in a similar manner to column data. In particular, the combination of the generalized scalar function and a particular column function allows the functions of the particular column function to be performed on row(s) without writing a specialized row function that performs analogous functions to the column function. Specification, page 9, lines 1-6.

Thus, the specification already states that the function of the generalized scalar function provides row data to the column function in a manner that allows the column function to treat the row data as a column. Furthermore, Applicant notes that the generalized scalar function is termed a “scalar” function because the generalized scalar function because the number of arguments is determined at the time the generalized scalar function is written. Specification, page 8, lines 7-9. The column function is also defined to be a pre-existing, conventional column function that

functions in a conventional manner. Consequently, upon reading the specification and thus knowing the function of the generalized scalar function, one of ordinary skill in the art would understand the term generalized scalar function, would understand that the inventors have possession of the column portion of the claimed invention, and would be capable of making and/or using the generalized scalar function in conjunction with the column function in the manner recited in the claims.

In the above-identified telephonic interview, the Examiner also indicated that the Examiner believed that issues such as the potential for a row to include entries having different data attributes needed to be addressed in the specification in order to adequately disclose the present invention. Applicant respectfully disagrees with this conclusion. As indicated in the Declaration, the possibility of one or more entries having incompatible data attributes already exists in relational databases. For example, it is possible that because they operate on rows conventional scalar functions will encounter data having different attributes. Similarly, column functions might encounter data having different attributes, for example because of a user error in entering the data. This possibility of entries having different is also present for the generalized scalar function. However, such a possibility can be addressed in a conventional manner. For example, the entries in the row may be checked, just as entries in a column might be checked, and, if necessary, error messages provided. Thus, as is also indicated in the Declaration, addressing issues such as the possibility of entries in a row having different attributes is well within the abilities of one or ordinary skill in the art. Consequently, Applicant respectfully submits that the specification already sufficiently describes the generalized scalar function in view of potential issues such as the possibility that entries in the row has different data attributes.

Thus, for the above reasons, Applicant respectfully submits that Applicants are in possession of the claimed invention. Consequently, Applicant respectfully submits that the Examiner's objection under 27 C.F.R. 1.71 has been addressed.

In the above-identified Office Action, the Examiner also rejected claims 1-21 under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not disclosed in the specification in such a manner as to allow one of ordinary skill in the art to make and/or use the invention. In particular, the Examiner indicated that as to independent claims 1, 8, and 15, "applicants fail to disclose the simulation mechanism and the corresponding data structures, for simulating the claimed scalar function with row parameter into conventional column parameter environment. Particularly, the submitted specification fails to show the form of the generalized scalar function."

Applicant respectfully disagrees with the Examiner's rejection. As discussed above, claim 1 recites a method for utilizing a (conventional) column function for a relational database. In the method recited in claim 1, a user is allowed to specify one or more row(s) as argument(s) for a generalized scalar function. The column environment is then simulated using the generalized scalar function "to allow the at least one row to be provided to the column function as though the at least one row was a column." The conventional column function then operates on the at least one row to provide at least one output. Claims 8 and 15 recite analogous computer-readable medium and system.

Thus, as recited in claim 1, 8, and 15, a generalized scalar function and a (conventional) column function are used together. The generalized scalar function, therefore, provides the data in the row to the column function so that the column function can use the data. For example, as discussed in the Declaration, the data may simply be provided to the column function entry by

entry. Applicant also respectfully submits that one of ordinary skill in the art would also understand that there are a number of ways to take data from a first, known form (i.e. row form) and provide the data to a function that uses the data in a second form (i.e. column form). Further, for the reasons described above, Applicant respectfully submits that one of ordinary skill in the art would recognize how to call the conventional column function with which the generalized scalar function is used. For the reasons discussed above, one of ordinary skill in the art would also recognize how to provide the data from the row to the column function. Moreover, for the reasons discussed above, issues such as differing data attributes could be addressed by one of ordinary skill in the art without additional disclosure by Applicant. Consequently, Applicant respectfully submits that one of ordinary skill in the art will readily understand how to make and/or use the invention recited in claims 1, 8, and 15 and, therefore, claims 2-7, 9-14 and 16-21. Accordingly, Applicant respectfully submits that the Examiner's rejection under 35 U.S.C. § 112, first paragraph has been addressed.

In the above-identified Office Action, the Examiner also rejected claims 1-21 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to point out and distinctly claim the subject matter that the Applicant regards as the invention. In particular, the Examiner rejected claims 1, 8, and 15 because of the use of the phrase "capable of" and an "indeterminate number of entries." With respect to claims 6, 13, and 20, the Examiner objected to the phrase the "first entry of each of the at least one row."

Applicant has amended claims 1, 8 and 15 to remove the phrase "capable of." In addition, Applicant respectfully submits that one of ordinary skill in the art would readily understand the term an "indeterminate number" of entries. As discussed in the specification, data in a relational database can be expressed in the form of a table having multiple entries. Specification, page 1,

lines 7-9. The table is also organized into rows and columns. Specification, page 1, lines 10-11. Depending upon how the data is to be organized (e.g. the columns) and the amount of data in a particular column, the number of rows and columns may change. The total amount of data as well as how the data is organized depends upon the actual data input by a user. Thus, the number of entries in a row (e.g. the number of columns) depends upon the data input by a user. Similarly, the number of entries in a column (e.g. the number of rows) depends upon the data input by a user. For example, Figure 1 depicts a table having three rows and four columns. Thus, the number of entries in a row for the table depicted in Figure 1 is four. However, another table being used for another purpose may have a different number of entries in each row. Specification, page 1, lines 12-14. Thus, the number of entries in a row (or column) for a particular table is not determined at the time the generalized scalar function is written. Specification, page 2, lines 18-23. The number of entries in a row or column is thus indeterminate. Consequently, Applicant respectfully submits that the phrase an “indeterminate number of entries” is clear and definite.

With respect to claims 6, 13, and 20, Applicant respectfully submits that the term “a first entry of each of the at least one row” is clear and definite. For example, in the table depicted in Figure 1, the first entry in the row 6 is the number eleven (11). In the table depicted in Figure 1, the first entry in the row 7 is the number fifteen (15). Moreover, with respect to the initialization phase and evaluation phase, these are phases performed by the conventional column function. Specification, page 4, lines 1-10. Thus, Applicant respectfully submits that the phrase “a first entry of each of the at least one row” and corresponding phrases are clear and definite. Accordingly, Applicant respectfully submits that claims 1-21 are clear and definite.

The Examiner also rejected claims 1-21 under 35 U.S.C. § 102 as being anticipated by Melton.

Applicant respectfully disagrees with the Examiner's rejection. Claim 1 recites a method for utilizing a column function for a relational database in a structure query language (SQL) environment. The column function is capable of performing an operation on an indeterminate number of entries. The relational database utilizes data includes entries that are organized into at least one column and at least one row. Claim 1 recites the steps of allowing a user to specify the at least one row as an argument for a generalized scalar function. The generalized scalar function is used to simulate a column environment for the row(s). More specifically, claim 1 recites that the generalized scalar function is used "to allow the at least one row to be provided to the column function as though the at least one row was a column." The column function can thus performed for data in the at least one row, which now mimics a column. Consequently, at least one output for the row data is provided by the column function. Claims 8 and 15 recite analogous computer-readable medium and system claims.

Thus, using the method, computer-readable medium and system recited in claims 1, 8, and 15, respectively, the pre-existing column function can be reused to work on row data. As a result, the resources that would be used in rewriting, testing, and debugging a row function that performs the operations of the column function are saved. Specification, page 9, lines 1-6; page 10, lines 9-13.

In contrast, the cited portions Melton fails to teach of suggest the use of the recited generalized scalar function in conjunction with a (pre-existing, conventional) column function. Instead, the cited portions of Melton describe a specific set of row functions that are written. For example, cited portions of Melton describe row functions that are written to search previously accessed rows or offsets. Melton, col. 2, lines 10-45. The functions in Melton are written to perform specific operations on rows. Applicant can find no indication in the cited portions of

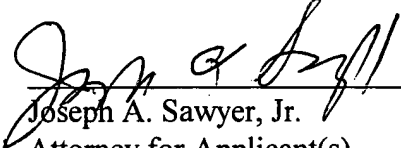
Melton that the functions of Melton are used in conjunction with pre-existing column functions. The cited portions of Melton are also devoid of mention of utilizing a generalized scalar function to simulate a column environment so that the row data appears to the column function as a column. Thus, the cited portions of Melton fails to teach or suggest using a generalized scalar function to allow the row(s) to be provided to the column function as though the at least one row was a column in conjunction with a column function that performs its operation in a conventional manner. Consequently, the cited portions of Melton fail to teach or suggest the method, computer-readable medium and system recited in claims 1, 8, and 15. Accordingly, Applicant respectfully submits that claims 1, 8, and 15 are allowable over the cited references.

Claims 2-7, 9-14 and 16-21 depend upon independent claims 1, 8, and 15, respectively. Consequently, the arguments herein apply with full force to claims 2-7, 9-14, and 16-21. Accordingly, Applicant respectfully submits that claims 2-7, 9-14, and 16-21 are allowable over the cited references.

Applicant's attorney believes that this application is in condition for allowance. Should any unresolved issues remain, Examiner is invited to call Applicant's attorney at the telephone number indicated below.

Respectfully submitted,
SAWYER LAW GROUP LLP

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Date


Joseph A. Sawyer, Jr.
Attorney for Applicant(s)
Reg. No. 30,801
(650) 493-4540